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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,765	09/28/2001	Peter L. Doyle	219.40020X00	2980

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Jeffrey B. Hunter
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
12400 WILSHIRE BLVD.
SEVENTH FLOOR
LOS ANGELES, CA 90025

EXAMINER

WHELPLEY, MICHAEL V

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 09/10/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/964,765

Applicant(s)

DOYLE ET AL.

Examiner

Michael V Whelpley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-30 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Lapidous et al. (US Patent 6,285,779).

3. In regard to Claim 1, Lapidous describes a graphics system 112 (Figure 17) that contains a depth buffer device that stores a variable-formatable floating-point number, which is related to the depth of a pixel of an image. A processing device compares a value associated with a current pixel to a value associated with a corresponding pixel stored within the depth buffer device (Col 4 Lines 61-67, Col 5 Lines 1-7).

4. In regard to Claims 7, 9, and 10, the rejection of Claim 1 above applies equally. Lapidous also describes a per-pixel converter 120 that determines the format of a depth buffer device (Col 18 Lines 13-18).

5. In regard to Claim 15, the rejections of Claims 1 and 7 above apply equally. Lapidous also describes the invention as a method, as well as a system (Abstract).

6. In regard to Claims 22 and 23, Lapidous also describes an embodiment of the invention in which the mantissa is calculated for the depth buffer device, and which stores a value of a current pixel in the device in a format based on the calculated

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mantissa (Col 15 Lines 55-58). Calculating the mantissa encompasses calculating the number of fraction bits

7. In regard to Claims 27 and 28, the rejection of Claims 1, 7, and 15 above apply equally. Lapidous also describes an embodiment of the invention as a program storage device readable by machine, that contains instructions executable by the machine (Col 18 Lines 43-55).

8. In regard to Claims 2, 5, 8, 13, 20, 21, 25, and 26, Lapidous also describes an embodiment of the invention in which the processing device uses the camera-object distance Z_v (Col 10 Line 17), divided by the distance from the camera to the far plane f of the view frustrum (Col 11 Line 13), as values used to compare the pixel and the depth buffer. The value Z_v/f (Equation 5) is related to the W value, and is equivalent to the value W/W_{far} described in the application.

9. In regard to Claims 3-4, 11-12, 16-18, and 29-30, the rejection of Claim 22 applies equally.

10. In regard to Claims 6, 14, 19, and 24, in Figure 17 Lapidous describes using display device 130 to display an image based on the result of the depth test.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Lapidous, et al. "Optimal Depth Buffer for Low-Cost Graphics Hardware."
Proceedings of the ACM SIGGRAPH/EUROGRAPHICS workshop on graphics
hardware. July 1999, Los Angeles, CA. Pp. 67-73.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael V Whelpley whose telephone number is (703) 305-5584. The examiner can normally be reached from 8:30-5, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman can be reached on (703) 305-3900. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9724.

MW


MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600